

**REMARKS**

Further consideration of this application courteously is solicited.

The Examiner's continued indication of allowance for independent claims 11 and 18 is noted. Attention is invited to the fact that claims 14 and 15 also depend from claim 11, in addition to claim 10 and therefore claims 14 and 15 as dependent from 11, likewise are considered to be allowable. By this paper, independent claims 10, 21, and 24 are amended. They are revised in a manner addressing the issues raised in the July 5, 2006 Action.

The July 5, 2006 Action asserts new grounds of rejection against claims 9, 10, 12, 13, 15, 17, 21, 24, and 25. These claims are alleged as anticipated by U. S. Patent No. 6,274,506 to Christenson et al. (hereinafter Christenson). Claims 14 and 16 each are rejected separately. Claim 14 is asserted as obvious over Christenson under 35 U.S.C. § 103(a). Claim 16 is alleged as obvious over Christenson in view of the previously-cited Thompson patent. The rejections are traversed.

As amended, the claims recite features that are not taught or suggested by Christenson alone, or Christenson taken in combination with Thompson. Each of claims 10, 21 and 24 recites a substrate holder that (1) rotates the substrate about the axis of the circular substrates themselves. Each of these claims now further specifies that (2) such axis of the substrates is in the horizontal direction (horizontal). Lastly, each of the claims recites (3) the ejecting orifices of the nozzle as ejecting "the processing liquid toward substantial centers of the substrates" (claims 10 and 24) or ejecting "the processing liquid obliquely to the processing surfaces of the plural substrates held by the substrate holder to make the processing liquid come into contact with substantial centers of the substrates" (claim 21).

To ensure full appreciation of summarized features (1), (2), and (3) above, brief reference again will be made to Applicants' exemplary, preferred embodiment as shown in Figure 4. In Figure 4, the axis of the wafers, W, coincides with that of the rotating shaft 23a. Clearly, this

axis is shown as horizontal, with it extending through the center of each of the wafers in their side-by-side vertical, arrangement. Ejecting orifices 53 spray processing liquid between the side-by-side wafers, to their centers. Shaft 23a thus rotates the wafers about their axis in accordance with feature (1) mentioned above. The axis through the wafers' center and the rotating shaft 23a thus is horizontal in accordance with feature (2). And, the ejecting orifices 53 thus eject processing liquid directly toward the centers of the substrates, as held by the holder, in accordance with feature (3).

The July 5, 2006 Office Action relies upon Figures 3-5 of Christenson for supporting the present rejections. However, none of these three Figures, or the remainder of Christenson adequately supports the rejections. Figure 3 of Christenson shows spray processor 110 having a housing 103 with spray post 120 attached to an inside wall of the housing. Wafers 119 are held horizontally in stacked relation on a support upright 116 which is mounted to a turntable 112. The turntable, the upright 116, and the wafers 119 are rotated by shaft 111 along rotation axis 114. It is clear to Applicants, from Christenson's teachings, that shaft 111 is set vertically such that the axis of rotation is 90° different from that of Applicants' own arrangement. Wafers 119 then are sprayed from nozzles 122 in post 120. Christenson shows streams 130 from nozzles 122, which streams specifically are taught as directed at regions at or near the edge of the wafers 119. This teaching of directing the streams 130 to the edge of the wafers is consistent throughout Christenson. Christenson goes on to teach that the liquid (ozonated water) is carried to near the axis of rotation 114 by momentum. It is momentum, not the arrangement of the nozzles' and the spray post, that is responsible for ejecting processing liquid toward the centers of wafers 119.

When Christenson's Figure 3 embodiment is considered in conjunction with Applicants' features (1) through (3) above, it must be concluded that Christenson cannot teach or suggest claims 10, 21, and 24 reciting such features. For instance, given Christenson's vertical arrangement of the shaft 111, Christenson cannot teach or suggest above feature (2). By teaching that streams 130 impinge the edge or near the edge of the wafers, Christenson cannot teach or suggest Applicants' feature (3) above.

Christenson's Figure 4 likewise is deficient with respect to claims 10, 21, and 24. Indeed, Christenson's arrangement of Figure 4 is even further from Applicants' claimed arrangements. In Christenson's structure of Figure 4, the wafers are situated so as to revolve around a vertical axis 214. In this situation, the wafers do not even rotate about the axis of the substrate as required by above feature (1). As such, Christenson's arrangement of Figure 4 fails to teach or suggest any of Applicants' above-listed features (1), (2), and (3).

In Christenson's arrangement of Figure 5, at least the wafers are held vertically, side-by-side in a way similar to that of Applicants' Figure 4. However, for the apparatus of Figure 5, Christenson does not teach or suggest rotation of the wafers. Therefore, Christenson does not disclose Applicants' feature (1) in this embodiment. Further, as discussed above, Christenson is clear in requiring that the nozzles direct the processing liquid to the edges or near the edges of the wafers. In accordance with this teaching as made especially clear in conjunction with Christenson's Figure 3, those of ordinary skill in the art likewise would conclude that Christenson's nozzles 322 in the Figure 5 arrangement direct the streams 330 to at or near the wafer edges, with the expectation that momentum (and in the case of Figure 5, likely gravity) will carry the fluid toward the center of the wafers. As such, Applicants courteously submit that Christenson's Figure 5 arrangement also fails to teach or suggest their above-mentioned feature (3).

For at least the reasons set forth above, it courteously is urged that Christenson alone does not anticipate or render obvious any of amended independent claims 10, 21, and 24, or any of their respective dependent claims. Accordingly, both rejections based upon Christenson alone are overcome. The rejections based upon 35 U.S.C. 102(e) and 35 U.S.C. § 103(a) must be withdrawn.

Next, the Thompson patent does not remedy the above-discussed deficiencies of Christenson with respect to the rejected claims. Specifically, Thompson does not remedy the deficiencies of Christenson with respect to discussed features (1), (2), and (3) in independent

claims 10, 21, and 24. Hence, the rejection (of claim 16) asserted over Christenson and Thompson also is overcome. It likewise should be withdrawn.

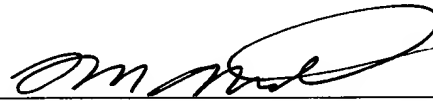
In view of the foregoing amendment and remarks, it courteously is urged that all of the claims are allowable and that this application is now in condition for allowance. Favorable action in that regard earnestly is solicited.

If an extension of time under 37 C.F.R. § 1.136 is necessary that is not accounted for in the papers filed herewith, such an extension is requested. The extension fee should be charged to Deposit Account No. 02-4300; Order No. 033082 M 072.

Respectfully submitted,

SMITH, GAMBRELL & RUSSELL, LLP

By:



Michael A. Makuch, Reg. No. 32,263  
1850 M Street, N.W., Suite 800  
Washington, D.C. 20036  
Telephone: (202)263-4300  
Facsimile: (202) 263-4329

Dated: October 4, 2006